The farmer revisited

Gelia T. Castillo

Farmers, the central figures in the complex drama of food production, are usually in the dark when any international conference on world food is held. If they are aware of such meetings, they may wonder why the experts and the policymakers were invited and they were not.

These sentiments bring into focus the human perspective from which Dr. Gelia T. Castillo, Professor of Rural Sociology at the University of the Philippines, approaches the problems of world food production. Dr. Castillo, who is an IDRC Research Fellow, views the farmer not just as a farmer, but also as a family man, a consumer and as a target of development programs. The view is important, she told a recent world food conference in the USA, because the farmer can make or break development programs — the success or failure of policies drawn up in the backrooms of government, or research perfected in laboratories and experimental sites, ultimately depends on the response of the farmer.

In the following extract from her paper, *The farmer revisited: Towards a return to the food problem,* Dr. Castillo assesses the response of the Filipino farmer to the new rice technology . . . "not as a universal farmer, but as an illustrative case."

Despite their poverty, their level of schooling, their small farms and share tenancy status, Filipino farmers have responded positively to the new rice technology. As a result, less than 10 years after the new technology was introduced, 62 percent of the total rice area in the Philippines is planted with modern semi-dwarf varieties.

Furthermore, annual output growth in rice production is explained almost completely by increased yield rather than by expansion in hectarage. Our farmers, therefore, cannot be faulted for being traditional, resistant to change and unwilling to take risks.

But all these innovations and improvements in productivity have yet to solve our rice problem. Actual yields still lag considerably behind experimental station potentials. As Dr. Robert Chandler, former Director of IRRI reflected on this matter, he said: "The only real disappointment I felt was that somehow we did not understand sufficiently why the Asian farmer who had adopted the new varieties was not doing better. Somehow I felt that the rice scientists who had obtained yields of up to 5 to 10 metric tons per hectare on the IRRI farm still could not explain why so many Filipino farmers (for example) obtained on the average less than one metric ton per hectare increase in yield after shifting from the traditional to the high-yielding varieties."

These observations have led economists and agronomists in several national rice research programs, in cooperation with IRRI scientists, to study the bio-physical as well as socio-economic "constraints" preventing farmers from achieving as high yields on their farms as rice scientists have been able to obtain on experimental stations.

A study by R. W. Herdt and R. Barker identified two distinct gaps between farmer's yield and experimental station yield. "Gap I, the 'environmental effects', shows the difference between the maximum possible yield of the technology under experiment station conditions and the maximum yield in farmers' environments. The second gap shows the difference between farmers' actual yields and the maximum potential under their conditions . . . . In some circumstances, the gap between the best yields in experiment stations and the maximum potential under most farmers' conditions may be just as wide as the second gap."

In farm level observations from this "constraints" study, mean yields were 2 tons per hectare during the wet season and 2.8 during the dry season. Heavy rains, floods, and typhoons caused low yields in the wet season, while in the dry season farmers attributed yield loss to rat damage, shortage of water, lack of fertilizer, insect infestation and weeds. The failure of the wet season crop also reduced the use of fertilizer, herbicides, and insecticides in the dry season.

Lack of awareness is not a significant constraint since 95 percent of the farmers have heard of the 16 practices studied. Inputs were also apparently available. The widespread adoption of the new seeds and their accompanying components has given us the impression that our farmers are sophisticated. Their ability to use each input correctly is, however, another matter.

For example, while most of the farmers had used chemical fertilizer for over a decade only one-third correctly identified the time at which it should be applied. Knowledge of correct weed control practice is also very low. While they use insecticides and can recognize the damage caused by insects, their ability to identify which insect is responsible for what damage is not as encouraging.

Although practically all of them use the new varieties, the seeds they use are seldom pure for they obtain them only from other farmers and they plant their seedlings much older than the ideal age.

We therefore have a situation characterized by high awareness of yield-increasing technology, and high adoption of that technology, but a low level of technical knowledge and consequently a high incidence of incorrect use of the technology.

Richard H. Bernsten, who surveyed rice farming in Central Luzon, suggests that "part of the yield gap could be reduced and costs could be lowered by teaching farmers how to use presently employed inputs properly." This latter task depends on the intensity of extension exposure. Unfortunately even in the study sites which are priority areas for rice production and land reform programs, farmers receive an average of less than three visits by extension workers during the cultivating season.

In most cases, reports Bernsten "the purpose of the visit was to process papers which were required for obtaining an input loan. The education component of extension was largely neglected. At the same time over 75 percent of the farmers wanted the technician to visit more frequently — indicating their receptivity to new knowledge and a positive attitude towards the extension technician."

The relevant issue, therefore, is no longer adoption versus non-adoption, but sufficient knowledge to adopt and use the technology properly. This provides an important, indeed crucial, role for the extension worker. □